

Attorney Docket Number: FSP0149
Client Reference Number: 260146US
Title: DATA NORMALIZATION
Application Number: 09/995,058

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Claims

This listing of claims replaces all prior versions and listings of claims in the present application.

1. (Previously Presented) A system for use with a broadband network, the system comprising:
a data collector coupled to obtain network performance metrics from network elements in the at least a portion of the broadband network; and
logic to normalize the performance metrics by applying device-specific information for the network elements from which the network performance metrics were obtained.
2. (Cancelled) The system of claim 1 wherein the processor is configured to adjust each of the obtained network performance metrics depending upon device-specific information of each network element.
3. (Original) The system of claim 2 wherein the device-specific information includes at least one of make, model, hardware version, software version, and element settings associated with each of the network elements.
4. (Previously Presented) The system of claim 2 wherein the data collector is further configured to obtain at least one of Management Information Base objects and command line interface information from the network elements and the logic is further to determine the device-specific information from the at least one of Management Information Base objects and command line interface information.
5. (Original) The system of claim 1 wherein the network performance metrics are remotely-accessible standard management instrumentation.

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6. (Previously Presented) The system of claim 5 wherein the broadband network is a Data Over Cable Service Interface Specification network and the network performance metrics include at least one of signal-to-noise ratio, power level, equalizer coefficients, settings information, error information, counter information, bandwidth, quality of service, latency, and jitter.

7. (Original) The system of claim 1 wherein the logic comprises software instructions and a computer processor configured to read and execute the software instructions.

8. (Previously Presented) A computer program product residing on a computer-readable medium and including computer-executable instructions for causing a computer to:
obtain network performance metrics from broadband network elements;
use network management instrumentation associated with the broadband network elements to determine which of multiple calibration algorithms to apply to the obtained network performance metrics; and
normalize the obtained network performance metrics using the determined calibration algorithm to yield normalized network performance metrics by adjusting the obtained network performance metrics, as appropriate, such that a first network performance metric from a first network element and having a first value and a second network performance metric, from a second network element and of a similar type as the first network performance metric, and having a second value, different from the first value, yield first and second normalized network performance metrics.

9. (Original) The computer program product of claim 8 wherein the network management instrumentation includes Management Information Base objects and the instructions for causing the computer to use the network management instrumentation are for causing the computer to identify the first and second network elements using the Management Information Base objects.

10. (Original) The computer program product of claim 9 wherein the instructions for causing the computer to identify the first and second network elements cause the computer to determine at least

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one of make, model, hardware version, software version, and settings of each of the first and second network elements.

11. (Withdrawn) A method of calibrating a broadband network performance metric of a first broadband network element, the method comprising:
analyzing network traffic associated with the first broadband network element to determine network performance values;
obtaining expected values for the network performance values of the first broadband network element;
deriving a relationship that maps the network performance values of the first broadband network element to the expected values; and
altering network operation if the network performance values fail to meet performance standards.

12. (Withdrawn) The method of claim 11 wherein
obtaining the expected values comprises polling Management Information Base objects of the first network element.

13. (Withdrawn) The method of claim 12 wherein deriving the relationship comprises curve fitting the network performance values and the expected values.

14. (Withdrawn) The method of claim 13 wherein deriving the relationship further comprises determining coefficients of a polynomial describing the expected values as a function of the network performance values.

15. (Withdrawn) The method of claim 11 wherein the network performance data are obtained corresponding to a range of network performance values and expected values.

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16. (Withdrawn) The method of claim 11 further comprising injecting test data into at least a portion of the network associated with the network element to affect the network performance values .

17. (Withdrawn) The method of claim 12 wherein deriving the relationship comprises using values of Management Information Base objects other than those that provided the expected values.

18. (Cancelled) The method of claim 12 wherein deriving the relationship comprises curve fitting at least the first and second values.

19. (Withdrawn) The method of claim 17 wherein the Management Information Base objects other than those that provided the expected values are of at least one of codeword errors, power levels, equalizer settings, and packet size distributions.

20. (Withdrawn) The method of claim 19 wherein the Management Information Base objects other than those that provided the expected values are of codeword errors, the network performance values are of signal-to-noise ratio, and the expected values are of channel noise ratio.

21. (Withdrawn) The system of claim 6 wherein the broadband network performance metrics further include at least one of a codeword error, a power level, an equalizer setting, and a packet size distribution, and the data processor is configured to process at least one of a signal-to-noise ratio, a power level, an equalizer coefficient, a settings information, an error information, a counter information, a bandwidth, a quality of service, a latency, and a jitter and at least one of the codeword error, the power level, the equalizer setting, and the packet size distribution to yield the normalized metrics.

22. (Withdrawn) The system of claim 21 wherein the data processor is configured to process signal-to-noise ratio metrics and codeword error metrics to obtain channel noise ratio normalized metrics.

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